No. 7800091

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The Curators of the University of Missouri

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

FESCUE

'Missouri-96'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 12th *day of* April *in the year of our Lord one thousand nine hundred and* seventy-nine

PLANT VARIETY PROTECTION OFFICE · U.S. DEPARTMENT OF AGRICULTURE

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

INSTRUCTIONS: *See Reverse.*

FOR OFFICIAL USE ONLY

1a. TEMPORARY DESIGNATION OF VARIETY: I-96	1b. VARIETY NAME: Missouri-96
PV NUMBER: 7800091	
2. KIND NAME: Tall Fescue	3. GENUS AND SPECIES NAME: Festuca arundinacea
FILING DATE: 7-24-78	TIME: 11:15 (A.M.) P.M.
4. FAMILY NAME (BOTANICAL): Gramineae	5. DATE OF DETERMINATION: 1976
FEE RECEIVED: $ 500.00 $ 250.00	DATE: 7-24-78 3-29-79
6. NAME OF APPLICANT(S): The Curators of the University of Missouri	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*: 225 University Hall Columbia, Missouri 65211
	8. TELEPHONE AREA CODE AND NUMBER: 314-882-2401
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* A public corporation per Section 172.020 R.S. Mo.	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION: Missouri
	11. DATE OF INCORPORATION: 1839

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:
David A. Sleper, Department of Agronomy, University of Missouri, Columbia, Mo. 65211

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [ ] 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? [X] YES [ ] NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? [X] FOUNDATION [ ] REGISTERED [X] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [X] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

The Curators of the University of Missouri
Dale O. Bowling
(SIGNATURE OF APPLICANT)

July 10, 1978
(DATE)

Dale O. Bowling, Vice-President for Business Management.
(SIGNATURE OF APPLICANT)

APPROVED AS TO LEGAL FORM
7/6/78

(DATE)

FORM GR-470 (1-78)

Exhibit A

7800091

Origin and Breeding History

Missouri-96 tall fescue was developed by scientists at the Missouri Agriculture Experiment Station. Missouri-96 was developed out of a broad-based seed source received from Dr. J. Jader-Hecart, Institut National De La Recherchi Agronomique in France. Selection was practiced for soft, fine leaves from clones that were replicated in simulated swards. Desirable clones similar in maturity were intermated and the seed increased without progeny testing. During the developmental stages, this forage grass was tested as experimental I-96.

Higgins

UNIVERSITY OF MISSOURI-COLUMBIA

College of Agriculture

Department of Agronomy

210 Waters
Columbia, Missouri 65201
Telephone (314) 882-2006
(314) 882-2801

December 14, 1978

Mr. Joseph J. Higgins
United States Department of Agriculture
Agricultural Marketing Service
National Agricultural Library Building
Beltsville, Maryland 20705

Dear Mr. Higgins:

This letter concerns Tall Fescue application number 7800091, 'Missouri-96'.

In Exhibit A I failed to indicate whether any varients have been observed. No variants have been observed. Our seed increase plots have also been monitored closely with the discovery of no variants.

As far as the novelty statement is concerned, 'Missouri-96' tall fescue most closely resembles 'Kentucky-31' (in adaptation, maturity, plant height, growth habit, and etc.) except for leaf width. The leaf width of 'Missouri-96' is less (statistically significant) than Kentucky-31 tall fescue.

I hope the above will serve as the novelty statement. If there are further inquiries, please contact me.

Sincerely,

David Sleper

David A. Sleper
Associate Professor

mbt

12-20-78
OKW

UNIVERSITY OF MISSOURI-COLUMBIA

College of Agriculture

Department of Agronomy

210 Waters
Columbia, Missouri 65201
Telephone (314) 882-2006
(314) 882-2801

January 23, 1979

Mr. Joseph J. Higgins
USDA, Agric. Marketing Service
National Agric. Library Building
Beltsville, Maryland 20705

Dear Mr. Higgins:

I am writing this in response to your questions raised in the January 4, 1979, letter.

In answer to your first inquiry, we have determined that Missouri-96 is stable and uniform by carefully isolating the breeders seed increase block at the Southwest Missouri Research Center, at Mt. Vernon, Mo. The breeders seed was carefully harvested and processed at the University of Missouri facilities at Columbia. This seed was then planted in a foundation seed field which was isolated approximately one mile from any other tall fescue seed sources and was carefully walked for the purpose of observing any variants. No variants have been found in Missouri-96. It is remarkably stable as has been indicated by our various clippings and forage quality evaluation trials that have been conducted around the state in Missouri. I have no further statement to add to exhibit A.

In exhibit C, we have provided information for reaction to crown rust. At the bottom of Table 3, it should read that this was evaluated on a scale of 1-5. It was not evaluated on a scale of 0-5 and I apologize for this typographical error. I thank you for discovering it for me.

As far as your last inquiry is concerned, we have no additional data that shows how Missouri-96 differs from 'Alta', 'Kenwell', and 'Fawn' for maturity. Fawn under our conditions is ten days earlier in maturity than Missouri-96.

I sincerely hope that this will answer your questions and we can proceed rapidly with getting Missouri-96 protected.

Sincerely,

David Sleper

David A. Sleper
Associate Professor

mbt

Exhibit B

Novelty Statement

Missouri-96 is unique since it is one of the few forage grasses ever evaluated for animal performance before release. The improvement of Missouri-96 over Kentucky-31 in terms of animal performance is marked. Mean average daily gains were greater than 30% over Kentucky-31 in 1974, 1975, and 1976 as evaluated at the Southwest Research Center, Mount Vernon, Missouri.

Missouri-96 can be distinguished from other tall fescue varieties by its narrower leaf blade width and its improved resistance to crown rust. Germinating seedlings of Missouri-96 have a darker red coleoptile color on the average than germinating Kentucky-31 seedlings.

Lead blade widths of 5 tall fescue varieties.

Variety	Blade Width mm
Missouri-96	6.10
Kenmont	6.90
Kentucky-31	6.92
Fawn	7.10
Alta	7.12
Goar	7.22
Kenhy	7.62
LSD (.05)	0.08
LSD (.01)	0.11

FORM GR-470-37
(3-76)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

OBJECTIVE DESCRIPTION OF VARIETY
FESCUE
(Festuca spp.)

NAME OF APPLICANT(S): The Curators of the University of Missouri, on behalf of Department of Agronomy, University of Missouri, Columbia

VARIETY NAME OR TEMPORARY DESIGNATION: Missouri 96

ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code): College of Agriculture 135 Mumford, Columbia, Missouri 65211

FOR OFFICIAL USE ONLY

PVPO NUMBER: 7800091

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less. Characteristics described, including numerical measurements, should represent those that are typical for the variety. Ranges may be given also. Measured data should be for SPACED PLANTS. Royal Horticultural Society or any recognized color fan may be used to determine plant colors; designate system used:_____. Describe location of test area_____.
All questions need not be answered, however, completeness should be striven for in order to establish the most adequate Variety Identification.

1. SPECIES: (With comparison varieties for use below - use varieties within species of application variety)

[1]
1 = F. ARUNDINACEA (TALL) 11 = ALTA 12 = FAWN 13 = GOAR 14 = KENTUCKY 31
2 = F. PRATENSIS (MEADOW) 21 = ENSIGN 22 = TRADER
3 = F. RUBRA SSP. COMMUTATA (CHEWINGS) 31 = CASCADE 32 = HIGHLIGHT 33 = JAMESTOWN
4 = F. RUBRA SSP. RUBRA (RED) 41 = BOREAL 42 = PENNLAWN 43 = DAWSON
5 = F. OVINA VAR. OVINA (SHEEP)
6 = F. LONGIFOLIA (HARD) 61 = DURAR 62 = BILJART (C-26) 63 = SCALDIS
7 = OTHER (SPECIFY) F._____

2. CYTOLOGY

[4][2] 2n CHROMOSOME NUMBER

3. ADAPTATION: (0 = Not Tested; 1 = Not Adapted; 2 = Adapted)

[0] NORTHEAST [0] SOUTHEAST [2] NORTH CENTRAL [0] PACIFIC N.W. [2] OTHER (SPECIFY) Southern Corn Belt

4. MATURITY: (50% Headed) Give Test Area Columbia and Mount Vernon, Missouri

[ ][ ] DAYS EARLIER THAN . . . . . [ ][ ]
MATURITY SAME AS . . . . . [1][4] COMPARISON VARIETY
[1][0] DAYS LATER THAN . . . . . [1][2] letter 10/11/78

5. PLANT HEIGHT: (At maturity to top of panicle)

[ ][ ][ ] mm HEIGHT
[ ][ ] mm SHORTER THAN . . . . . [ ][ ]
HEIGHT SAME AS . . . . . [1][4] COMPARISON VARIETY
[ ][ ] mm TALLER THAN . . . . . [ ][ ]

6. GROWTH HABIT (Mature)

[1] 1 = ERECT (KENTUCKY 31) 2 = SEMI-ERECT (HIGHLIGHT) 3 = PROSTRATE

7. RHIZOMES

[ ][ ] mm LENGTH [ ][ ] mm WIDTH F. 7

[1] 0 = ABSENT 1 = WEAKLY CREEPING (DAWSON) 2 = STRONGLY CREEPING (BOREAL) 3 = OTHER _____

8. LEAF BLADE:

1 = LIGHT GREEN (GOLFROOD) 2 = MODERATELY LIGHT GREEN (HIGHLIGHT) 3 = MEDIUM GREEN (JAMESTOWN, KENTUCKY 31)

[ ] COLOR:

7800091

8. LEAF BLADE:

[0] ANTHOCYANIN: 0 = ABSENT 1 = PRESENT [ ] HAIRS (BASAL): 0 = ABSENT 1 = PRESENT [2] MARGINS: 1 = SMOOTH 2 = SEMI-ROUGH 3 = ROUGH

[ ][ ][ ] mm LENGTH (FIRST LEAF BELOW FLAG LEAF) [ ][ ] mm WIDTH

[ ][ ] mm SHORTER THAN . . . . [ ][ ] [0][1] mm NARROWER THAN . [1][4] COMPARISON VARIETY

LENGTH SAME AS . . . . . [1][4] COMPARISON VARIETY WIDTH SAME AS . . [ ][ ] COMPARISON VARIETY

[ ][ ] mm LONGER THAN . . . . . [ ][ ] [ ][ ] mm WIDER THAN . . [ ][ ]

9. LEAF SHEATH (Plant Base):

[ ] COLOR: 1 = WHITE (HIGHLIGHT) 2 = RED [1] AURICLE HAIRINESS: 0 = ABSENT 1 = PRESENT

10. PANICLE (Mature plant)

[ ][ ][ ] NUMBER OF PANICLES PER PLANT (FIRST YEAR OF PRODUCTION - FALL OR SPRING PLANTING SPECIFY _____

[ ][ ][ ] mm LENGTH [ ][ ][ ] GRAMS OF SEED PER PANICLE

[ ][ ] mm SHORTER THAN . . . [ ][ ] [ ][ ] GRAMS LESS SEED THAN [ ][ ] COMPARISON VARIETY

LENGTH SAME AS . . . [ ][ ] COMPARISON VARIETY WEIGHT SAME AS . . [ ][ ] COMPARISON VARIETY

[ ][ ] mm LONGER THAN . . . [ ][ ] [ ][ ] GRAMS MORE SEED THAN [ ][ ]

[ ] SHAPE: 1 = NARROW-TAPERING 2 = EGG SHAPE 3 = OBLONG 4 = OTHER (SPECIFY) _____

[ ] TYPE: 1 = OPEN 2 = INTERMEDIATE 3 = COMPACT

[ ] HABIT: 1 = ERECT 2 = NODDING

[ ] BRANCHES: 1 = SMOOTH 2 = ROUGH

[ ] COLOR (At 50% flowering): 1 = YELLOWISH GREEN 2 = GREEN 3 = BLUISH GREEN 4 = PURPLISH 5 = REDDISH 6 = OTHER (SPECIFY) _____

11. PALEA:

[1] HAIRS (ON KEELS): 0 = ABSENT 1 = SHORT (OLDS) 2 = LONG (RAINIER)

12. LEMMA:

[1] HAIRS: 0 = ABSENT 1 = PRESENT [2] TEXTURE: 1 = SMOOTH 2 = ROUGH

[ ][ ] mm LEMMA LENGTH [ ][ ] mm LEMMA WIDTH

[ ][ ] mm SHORTER THAN . . . . [ ][ ] [ ][ ] mm NARROWER THAN [ ][ ] COMPARISON VARIETY

LENGTH SAME AS . . . . [1][4] COMPARISON VARIETY WIDTH SAME AS . . . [1][4] COMPARISON VARIETY

[ ][ ] mm LONGER THAN . . . . [ ][ ] [ ][ ] mm WIDER THAN. . . [ ][ ]

[1] AWNS: 0 = ABSENT 1 = PRESENT

[ ][ ] mm AWN LENGTH

7800091

12. LEMMA:

mm SHORTER THAN . . .

LENGTH SAME AS . . . 1 4 } COMPARISON VARIETY

mm LONGER THAN . . .

13. SEED:

8 0 0 mm LENGTH

9 0 mm WIDTH

mm SHORTER THAN . . .

LENGTH SAME AS . . . 1 4 } COMPARISON VARIETY

mm LONGER THAN . . .

mm. NARROWER THAN

WIDTH SAME AS . . 1 4 } COMPARISON VARIETY

mm WIDER THAN . .

1 8 1 7 GRAMS PER 1000 SEED

GRAMS LESS THAN .

WEIGHT SAME AS . 1 4 } COMPARISON VARIETY

GRAMS MORE THAN .

14. DISEASE, INSECT, AND NEMATODE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

0 HELMINTHOSPORIUM VAGANS	0 H. SOROKINIANUM	0 H. DICTYOIDES
0 RHIZOCTONIA SOLANI	0 ERYSIPHE GRAMINIS	0 USTILAGO STRIIFORMIS
0 FUSARIUM NIVALE	0 F. ROSEUM	0 TYPHULA IOTANA
0 PUCCINIA GRAMINIS	0 P. STRIIFORMIS	0 P. POAE-NEMORALIS
2 P. CORONATA	0 PYTHIUM ULTIMUM	0 CORTICIUM FUSCIFORME
0 SCLEROTINIA HOMEOCARPA	INSECT _____	NEMATODE _____
OTHER _____	OTHER _____	OTHER _____

15. GIVE VARIETY OR VARIETIES THAT MOST CLOSELY RESEMBLE THE APPLICATION VARIETY. For the following characteristics indicate degree of resemblance (D.R.) by placing in the column marked, D.R., one of the following numbers:

1 = Application variety is less than comparison variety 2 = Same as

3 = More than, better, greater, darker, more disease resistant, etc.

CHARACTER	VARIETY	D.R.	CHARACTER	VARIETY	D. R.
RHIZOME LENGTH	Kentucky-31	2	GROWTH HABIT	Kentucky-31	2
LEAF WIDTH	Kentucky-31	1	LEAF COLOR	Kentucky-31	2
PANICLE COLOR	Kentucky-31	2	PANICLE SHAPE	Kentucky-31	2
WINTER COLOR	Kentucky-31	3	COLD INJURY	Kentucky-31	3
SHADE TOLERANCE	Kentucky-31	2	HEAT	Kentucky-31	2
DROUGHT	Kentucky-31	1	DISEASE*		

*Specify each disease evaluated.

16. ADDITIONAL DESCRIPTION: (Use additional sheets as required)

Describe all characteristics that cannot be adequately described in the form above. Comparative varieties should be used as may be appropriate, such as for disease. Append all comparative trial and evaluation data, including measured characters, environmental, and disease tests.

Missouri-96 is a 13 clone synthetic. The parental materials were selected for soft, fine leaves out of a broad-based seed source received from France.

Table 1 contains animal performance data collected for three years at the Southwest Research Center, Mount Vernon, Missouri, for Missouri-96 and four other tall fescue varieties. The grazing period started in mid-April and concluded in mid-October for each of the three years. Each year heifers that weighed initially between 500-600 lbs. were used to evaluate the five varieties. All pastures were strip-grazed with weekly adjustments made in pasture size so that the amount of forage available for all animals from each variety was equal.

Table 1. Average daily gains for three years of heifers grazing five tall fescue varieties at the Southwest Research Center, Mount Vernon, Missouri.

Variety	Average Daily Gains (lbs.)[a]		
	Year 1	Year 2	Year 3
Missouri-96	1.16	1.18	1.38
Kenhy	1.11	1.33	1.36
Kenmont	0.77	0.96	1.26
Fawn	0.94	0.83	1.13
Kentucky-31	0.83	0.85	1.04

[a]Based on shrunk heifer weights

Means for year 1, 2, and 3 are significantly different at probably 0.05, 0.10, and 0.20, respectively.

Heifers consistently gained faster when grazing Missouri-96 and Kenhy than they did with any other tall fescue variety in the test. Data collected in this trial indicated that for the entire grazing season, Missouri-96 could be expected to result in about 1/3 lb. average daily gain more than Kentucky-31 which is the most prevalent variety of tall fescue presently grown. A mid-summer slump occurred for all varieties tested, but this slump was not as severe with Missouri-96 and Kenhy as compared to Kentucky-31.

Voluntary intake of hay from five tall fescue varieties consumed by Holstein heifers is given in Table 2. Hay was harvested in the vegetative stage and placed into storage without rain damage. Each variety was fed to two Holstein heifers for a 21-day period. The experiment was repeated a total of three times with different heifers on each forage each time. Missouri-96 had the highest forage intake for two out of the three trials. In the third trial, Kenhy was consumed in the largest amounts, but Missouri-96 was equal to or higher than Kentucky-31, Kenmont, and Fawn. The higher intake values for Missouri-96 may partially explain its improved animal performance.

Table 2. Voluntary intake of hay from five tall fescue varieties by Holstein Heifers[a]

Variety	Percent of Body Weight			
	Trial I	Trial II	Trial III	Average
Missouri-96	2.44	2.73	2.44	2.54
Kenhy	2.26	2.31	2.52	2.36
Kenmont	2.30	2.43	2.36	2.36
Fawn	2.28	2.37	2.29	2.31
Kentucky-31	2.42	2.25	2.45	2.37

[a]Intake values are 10% moisture basis.

16 Additional Description (Contd.)

Crown rust (Puccinia coronata) is a disease of tall fescue that is most prevalent in the fall. During certain years an infestation of crown rust can be serious and it is expected that this can reduce animal performance. Missouri-96 is more resistant to crown rust damage than either Kentucky-31 and Kenhy (Table 3).

Table 3. Crown rust reaction for three varieties of tall fescue.

Variety	Reaction[a]
Missouri-96	1.00
Kenhy	3.75
Kentucky-31	2.95

[a]Evaluated on a scale of 1 to 5 where 1 is the most resistant and 5 the most susceptible.

1/30/79 JJH per letter 1/23/79